AMENDMENTS TO THE CLAIMS:

Please replace the claims with the following rewritten listing.

1. (Currently Amended) A/D converter comprising a self-oscillating ~~pulse width~~ modulator, said converter comprising

at least one self-oscillating loop comprising

at least one forward path,

at least one feedback path,

wherein said at least one forward path comprises amplitude quantizing means combined with time quantizing means and outputting at least one time and amplitude quantized signal,

wherein an error originating from at least one time quantizer included in the at least one self-oscillating loop of the converter is suppressed by an error transfer function which, at low frequencies approximates an inverse of an open-loop transfer function of said at least one self-oscillating loop,

wherein the A/D modulator switches with a switch frequency which is at least partly defined by the at least one self oscillating loop, and

wherein the switch frequency is at least 100kHz.

2. (Original) A/D converter comprising a self-oscillating modulator according to claim 1, wherein said time quantizing means is arranged within said self-oscillating loop.

3. (Previously Presented) A/D converter comprising a self-oscillating modulator according to claim 1, wherein said time quantizing means comprises a high-speed sampling means.

4. (Previously Presented) A/D converter comprising a self-oscillating modulator according to claim 1, wherein said time quantizing means comprises a high-speed one-bit sampler.

5. (Previously Presented) A/D converter comprising a self-oscillating modulator according to claim 1, wherein said time quantizing means comprises latch-based circuitry comprising at least one latch, preferably at least two cascaded latches.

6. (Previously Presented) A/D converter comprising a self-oscillating modulator according to claim 1, wherein said amplitude quantizing means and said time quantizing means comprises a multi-bit A/D converter and where said feedback path comprises at least one D/A converter adapted for converting said time quantized signal into an analogue signal.

7. (Previously Presented) A/D converter comprising a self-oscillating modulator according to claim 1, wherein down sampling means are connected to said time quantizing means.

8. (Previously Presented) A/D converter comprising a self-oscillating modulator according to claim 1, wherein said A/D converter comprises two or more self-oscillating loops (SOL).

9. (Previously Presented) A/D converter comprising a self-oscillating modulator according to claim 1, wherein said amplitude and time quantizing means comprises an analogue two-level self-oscillating pulse width modulator.

10. (Previously Presented) A/D converter comprising a self-oscillating modulator according to claim 1, wherein said amplitude and time quantizing means comprises a multi-level self-oscillating pulse width modulator.

11. (Previously Presented) A/D converter comprising a self-oscillating modulator according to claim 1, wherein said A/D converter is single-ended.

12. (Previously Presented) A/D converter comprising a self-oscillating modulator according to claim 1, wherein said A/D converter is differential.

13. (Previously Presented) A/D converter comprising a self-oscillating modulator according to claim 1, wherein said A/D converter comprises filtering means, said filtering means adapted for band pass filtering the time quantized signal.

14. (Cancelled)

15. (Previously Presented) A/D converter comprising a self-oscillating modulator according to claim 1, wherein an error originating from at least one time quantizer included in the at least one self-oscillating loop of the converter is suppressed by an error transfer function which, at high frequencies approximates 0 dB.

16. (Previously Presented) A/D converter comprising a self-oscillating modulator according to claim 1, wherein said amplitude quantizing means comprises a limiter.

17. (Previously Presented) A/D converter comprising a self-oscillating modulator according to claim 1, wherein said amplitude quantizing means comprises a frequency compensated limiter.

18. (Previously Presented) A/D converter comprising a self-oscillating modulator according to claim 1, wherein a variable self-oscillating loop delay is applied.

19-20. (Cancelled)

21. (Previously Presented) A/D converter according to claim 1, wherein said A/D converter comprises switch frequency control means.

22. (Previously Presented) A/D converter according to claim 21, wherein said switch frequency control means comprises a variable delay in said at least one self oscillating loop.

23. (Previously Presented) A/D converter according to claim 21, wherein said switch frequency control means comprises an additional periodic signal generator connected to the self oscillating loop.

24. (Previously Presented) A/D converter according to claim 21, wherein said switch frequency control means comprises an oscillator or a derivative of a clock frequency.

25. (Previously Presented) A/D converter according to claim 1, wherein said at least one forward path comprises a non-linearity.

26. (Original) A/D converter according to claim 25, wherein said non-linearity comprises a limiter.

27. (Previously Presented) A/D converter according to claim 25, wherein said non-linearity comprises a frequency compensated limiter.

28. (Previously Presented) A/D converter according to claim 25, wherein said non-linearity comprises a comparator.

29. (Previously Presented) A/D converter according to claim 25, wherein said non-linearity comprises a operational amplifier.

30. (Previously Presented) A/D converter according to claim 25, wherein phase contribution of hysteresis in the non-linearity of the self-oscillating loop is less than 90°, preferably less than 40° at a switch frequency.

31. (Previously Presented) A/D converter according to claim 25, wherein phase contribution of hysteresis in the non-linearity of the self-oscillating loop at switch frequency is less than 20°, preferably less than 10°.

32. (Previously Presented) A/D converter according to claim 1, wherein said at least one forward path and said at least one feedback path forms at least one self-oscillating loop.

33. (Previously Presented) A/D converter according to claim 1, wherein said self-oscillating loop forms a pulse width modulator and wherein the modulation of an analog input signal fed to the at least one forward path is pulse width modulated at least partly by oscillations established in said at least one self-oscillating loop.

34. (Previously Presented) A/D converter according to claim 1, wherein said self-oscillating modulator comprises at least one analog input connected to said forward path and wherein an output of said forward path is connected to a digital output.

35. (Previously Presented) A/D converter according to claim 1, wherein a transfer functions H(s) is inserted in the forward path, thereby at least partly controlling a switch-frequency.

36. (Previously Presented) A/D converter according to claim 35, wherein the order of said transfer functions is at least one.

37. (Previously Presented) A/D converter according to claim 35, wherein the order of said transfer functions is at least two.

38. (Previously Presented) A/D converter according to any of the claim 35, wherein the effective order of said transfer functions is at least one, preferably substantially two.

39. (Previously Presented) A/D converter according to claim 1, wherein said A/D converter comprises an audio A/D-converter.

40. (Previously Presented) A/D converter according to claim 1, wherein a clock frequency of the time quantizing means is at least 10 (ten) times greater than a switch

frequency of said at least one self-oscillating loop, preferably at least 100 (hundred) times greater.

41. (Previously Presented) A/D converter according to claim 1, wherein said quantization in a time domain is performed within said at least one self-oscillating loop.

42. (Previously Presented) A/D converter according to claim 1, wherein said A/D further comprises at least one decimator communicating with digital output.

43. (Previously Presented) A/D converter according to claim 42, wherein said decimator comprises an anti aliasing filter having an impulse response which is longer than a period of the pulse width modulated signal, preferably at least longer than three times the period of the pulse width modulated signal.

44. (Previously Presented) A/D converter according to claim 43, wherein a stopband attenuation of the underlying antialiasing filter of the decimator is be greater than 60dB, preferably greater than 100dB.

45. (Original) A/D converter according to claim 44, wherein the stopband of the antialiasing filter is:

Stopband = $k \cdot fs_{OUT} \pm BW$, where k = 1,2,3,.... until the Nyquist frequency is reached,

fs_{OUT} is the output rate of the decimator and BW is the utility bandwidth, typically preferably at least 20 kHz

46. (Currently Amended) Method of ~~pulse width~~ modulating an analog input signal into a pulse width modulated digital signal, whereby said analog input signal is modulated into a ~~pulse width~~ modulated representation by means of at least one self-oscillating loop

said self-oscillating loop comprising

at least one forward path,

at least one feedback path,

wherein said at least one forward path comprises amplitude quantizing means combined with time quantizing means and outputting at least one time and amplitude quantized signal,

wherein an error originating from at least one time quantizer included in the at least one self-oscillating loop of the converter is suppressed by an error transfer function which, at low frequencies approximates an inverse of an open-loop transfer function of said at least one self-oscillating loop, and

wherein the modulator switches with a switch frequency that is at least 100kHz.

47. (Original) Method of pulse width modulating an analog input signal according to claim 46, wherein said analog signal comprises an audio or audio derived signal.

48. (Previously Presented) Method of pulse width modulating an analog input signal according to claim 46, whereby the method comprises the steps of representing a pulse width modulated representation as an analogue signal and quantizing the pulse width modulation in the time-domain and whereby said pulse width modulated representation is obtained by means of at least one self-oscillating modulator comprising at least one self-oscillating loop.

49. (Previously Presented) Method of pulse width modulating an analog input signal according to claim 46, wherein A/D converter switches with a switch frequency which is at least partly defined by the at least one self oscillating loop.

50. (Cancelled)

51. (Previously Presented) Method of pulse width modulating an analog input signal according to claim 49, wherein a clock frequency of the time quantizing means is at least

10 (ten) times greater than the switch frequency of said at least one self-oscillating loop, preferably at least 100 (hundred) times greater.

52. (Previously Presented) Method of pulse width modulating an analog input signal according to claim 46, wherein said method is performed in an audio A/D converter.

53. (Previously Presented) Method according to claims 46, whereby said method is applied in an A/D converter wherein said time quantizing means comprises at least one of an arrangement arranged within said self-oscillating loop, a high-speed sampling means, and a high-speed one-bit sampler.